

ABSTRACT OF THE DISCLOSURE

A system for real-time monitoring of the dynamic loading rate on support systems used in underground mines and other situations is provided. The load rate monitoring apparatus uses a programmable microcontroller to monitor and calculate the loading rates on the support system from pressure transducers or welded strain gauge instrumentation installed on the support systems. The apparatus is programmed to sequentially activate different color lights and/or audio alarms as the loading rate increases on the support systems. The apparatus is intended for installation with numerous underground support systems used in underground mining to alert miners of dangerous loading conditions, which support systems include longwall shields, mobile roof support (MRS) machines, hydraulic jacks, rock bolts, steel sets, and roof trusses. Intrinsically safe handheld computers and displays may be used for programming the microcontroller subsystem and optimal load weight indicators include multicolor strobes, light-emitting diodes (LEDs), fluorescent visual indicators and audio alarms.

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